PATENT COOPERATION TREATY

From the		AL SEARCHIN	G AUTHOR	ITY		MANS
То:			<u>,</u>			PCT PCT
						RITTEN OPINION OF THE IONAL SEARCHING AUTHORITY
				·		(PCT Rule 43bis.1)
					Date of mailing (day/month/year)	
Applica	nt's or as	gent's file referenc	e.		FOR FURTHER	ACTION
	852F					See paragraph 2 below
	-	plication No.		International filing date (day/month/year)	Priority date (day/month/year)
		2004/0190	001	20.12.2004		06.02.2004
Internat	ional Pat	tent Classification	(IPC) or both	national classification an	d IPC	
Applica		Techno:	1000 C	~~~		
Ker	iesas	recino.	Logy C	orp.		
1.	This o	pinion contains in	dications rela	ting to the following item	s:	
	\boxtimes	Box No. I	Basis of the	opinion	•	•
1		Box No. II	Priority		•	- 00
		Box No. III	Non-establi	shment of opinion with re	gard to novelty, invent	ive step and industrial applicability
<u>.</u>		Box No. IV		ty of invention		1
	\boxtimes	Box No. V	Reasoned st applicability	atement under Rule 43 <i>bis</i> y; citations and explanatio	.1(a)(i) with regard to ns supporting such sta	novelty, inventive step or industrial tement
	\sqcup	Box No. VI	Certain doc	uments cited		
	닏	Box No. VII	Certain def	ects in the international ap	plication	
	\boxtimes	Box No. VIII	Certain obs	ervations on the internation	nal application	
2.	FUR?	THER ACTION		·	•	
	Intern than t this Ir	ational Prelimina his one to be the nternational Searc	ry Examining IPEA and the hing Authorit	Authority ("IPEA") except chosen IPEA has notified ywill not be so considered	ot that this does not ap d the International Bu d.	ill be considered to be a written opinion of the ply where the applicant chooses an Authority other reau under Rule 66.1bis(b) that written opinions of
	If this	opinion is, as pr	ovided above	considered to be a writte	en opinion of the IPE. before the expiration	A, the applicant is invited to submit to the IPEA a n of 3 months from the date, of mailing of Form expires later.
		irther options, see				·
3.	For fu	ather details, see	notes to Form	PCT/ISA/220.		
_			ICA/ID		Authorized officer	
Name	and mail	ing address of the	ISAUP		Authorized officer	
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					Telephone No.	
I hacern	nile No				L'esopiione 110.	·

Facsimile No.

International application No.
PCT/JP2004/019001

Box	No. I Busis of this opinion
1.	With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
	This opinion has been established on the basis of a translation from the original language into the following language, which is the language of a translation furnished for the purposes of international search (under
	Rule 12.3 and 23.1(b)).
2.	With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
	a. type of material
	a sequence listing
	table(s) related to the sequence listing
	b. format of material
	in written format
	in computer readable form
	c. time of filing/furnishing
	contained in the international application as filed.
	filed together with the international application in computer readable form.
	furnished subsequently to this Authority for the purposes of search.
	In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or
3.	In addition, in the case that more than one version or copy of a sequence listing and or detect) retaining and of the detect of the furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4.	Additional comments:
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International application No.
PCT/JP2004/019001

	NTERNATION					PC1/3P2004/0190	701
Box No. V	Reasoned statement citations and expla	nt under Ru mations suj	ulc 43bis.1(a)(i) pporting such st	with regard to a	novelty, inver	tive step or industrial applicability;	
1. State	ment						
N	lovelty (N)	Claims	1-18	•			YES
_		Claims					NO
		Claimb					_
I	nventive step (IS)	Claims	1-18		<u> </u>		_ YES
	•	Claims					_ NO
I	ndustrial applicability (IA)	Claims	1-18				YES
		Claims		· · · · · · · · · · · · · · · · · · ·			- NO
		Ciuino					
2. Cita	tions and explanations:		-	•			
Do	cument 1: IP 2002.	512439	A (Energy	Conversio	n Device	s, Inc.), 23 April 2002, ful	1 text
& `	WO 1999/054128 A	\1	71 (1511016)	001110110		1	
Do	cument 2: JP 2001-	502848	A (Energy	Conversion	n Device	s, Inc.), 27 February 2001	, full
tex	r & WO 1998/0193	50°A1					
Do	cument 3: JP 11-51	4150 Λ	(Energy C	onversion l	Devices,	Inc.), 30 November 1999,	full
tex	i & WO 1997/0159	54 A1	Œ		Davion	Ing.) 07 September 1000	6.11
Do	cument 4: JP 11-51 at & WO 1997/0056	.031 / A	(Energy C	onversion	Devices,	Inc.), 07 September 1999,	Iun
Do	cument 5: WO 200	3/05087	72 A1 (Mat	sushita Ele	etric Indu	strial Co., Ltd.), 19 June 2	2003,
ful	Ltext						
		0/05498	82 A1 (Mat	sushita Ele	ectric Indu	strial Co., Ltd.), 21 Septe	mber
20	00, full text	0020 D	1 (Motavel	ita Electric	Industria	al Co., Ltd.), 06 March 19	80.
	ocument 7: JP 55-00 I text)8830 B	i (Matsush	na Elecuic	Hidusula	if Co., Ltd.), 00 Water 19	00,
Do	ocument 8: JP 2003	-229537	A (Hitach	i, Ltd.), 15	August 2	003, full text & US	
	03/0146469 A1						
			_			11 min the fall	
/= :	The storage di	sclosed	in and supp	orted by the	he specifi	cation and having the follonents cited in the ISR and	is non
(I) and (2) constitution vious to a person sl	ons is no zilled in	the art	in any or t	ne docum	icha choa m the 1814 and	
00	Therefore, the	inventi	ons of clair	ns 1 throug	zh 18 are	not described in any of the	
do	cuments cited in th	e ISR ar	nd are non-	obvious to	a person	skilled in the art.	
							:-1

(1) A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.

International application No.
PCT/JP2004/019001

Box No. VIII

Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

What is disclosed in the meaning of PCT Article 5 is obtaining high heat resistance in a phase-change memory by means of a storage having the following (1) and (2) constitutions.

- (1) A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.
- A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein it comprises a plurality of memory cells and a plurality of word lines for selecting the above-described memory cells and a plurality of data lines disposed so as to intersect the above-described plurality of word lines and for reading signals from the above-described plurality of memory cells; the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.

Thus, what is disclosed in the meaning of PCT Article 5 is merely a very small part of the inventions of claims 1 through 18, and is not adequately supported in the meaning of PCT Article 6.

International application No.
PCT/JP2004/019001

Supplemental Box

In case the space in any of the preceding boxes is not sufficient. Continuation of: $Box\ V$

A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein it comprises a plurality of memory cells and a plurality of word lines for selecting the above-described memory cells and a plurality of data lines disposed so as to intersect the above-described plurality of word lines and for reading signals from the above-described plurality of memory cells; the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.

PATENT COOPERATION TREATY

TRANSLATION INTERNATIONAL SEARCHING AUTHORITY To: WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1) Date of mailing (day/month/year) Applicant's or agent's file reference FOR FURTHER ACTION See paragraph 2 below NT1852PCT Priority date (day/month/year) International application No. International filing date (day/month/year) 06.02.2004 20.12.2004 PCT/JP2004/019001 International Patent Classification (IPC) or both national classification and IPC Applicant Renesas Technology Corp. This opinion contains indications relating to the following items: Box No. I Basis of the opinion Box No. II Priority Non-establishment of opinion with regard to novelty, inventive step and industrial applicability Box No. III Box No. IV Lack of unity of invention Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial Box No. V applicability; citations and explanations supporting such statement Box No. VI Certain documents cited Certain defects in the international application Box No. VII Certain observations on the international application Box No. VIII FURTHER ACTION If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered. If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCI/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later. For further options, see Form PCT/ISA/220. For further details, see notes to Form PCT/ISA/220. Authorized officer Name and mailing address of the ISA/JP

Telephone No

Facsimile No.

International application No.
PCT/JP2004/019001

Вох	No. I Busis of this opinion
1.	With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
l .	This opinion has been established on the basis of a translation from the original language into the following language
	, which is the language of a translation furnished for the purposes of international search (under
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	a sequence listing
	table(s) related to the sequence listing
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	in written format
1	in computer readable form
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	contained in the international application as filed.
1	filed together with the international application in computer readable form.
1	furnished subsequently to this Authority for the purposes of search.
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4.	Additional comments:
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International application No.
PCT/JP2004/019001

Box	No. V Reasoned statemen	nt under Ru mations sup	ulc 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; pporting such statement	
1.	Statement			
	Novelty (N)	Claims	1-18	_ YES
		Claims		_ NO
	Inventive step (IS)	Claims	1-18	_ YE
	Industrial applicability (IA)	Claims	1-18	_ YE
2.	Citations and explanations:			
	•	512439	A (Energy Conversion Devices, Inc.), 23 April 2002, ful	ll tex
	& WO 1999/054128 A	A1		
	Document 2: JP 2001-	502848	A (Energy Conversion Devices, Inc.), 27 February 2001	, full
	text & WO 1998/0193	50 A1	•	
	Document 3: JP 11-51	4150 Λ	(Energy Conversion Devices, Inc.), 30 November 1999,	full
	Text & WO 1997/0159	54 A1		
	Document 4: JP 11-51	0317 A	(Energy Conversion Devices, Inc.), 07 September 1999,	lull
	text & WO 1997/0056	65 A1		2002
		3/05087	72 A1 (Matsushita Electric Industrial Co., Ltd.), 19 June	2003
	full text	0.05.400	20 A1 (Matavahita Plactria Industrial Co. Ltd.) 21 Sente	mbei
		0/05490	82 A1 (Matsushita Electric Industrial Co., Ltd.), 21 Septe	
	2000, full text	1883U B	1 (Matsushita Electric Industrial Co., Ltd.), 06 March 19	80,
	full text	70050 D	1 (Madadina Biolate Madadina Co.,,	
	Document 8: IP 2003	-229537	A (Hitachi, Ltd.), 15 August 2003, full text & US	
	2003/0146469 A1			
	(1) and (2) constitution	ns is no	in and supported by the specification and having the follow described in any of the documents cited in the ISR and	owin is no
	obvious to a person sl	cilled in	the art. ons of claims 1 through 18 are not described in any of the	.
	I neretore, the	a ISB or	nd are non-obvious to a person skilled in the art.	
	documents cited in ur	C TOL M	id are non-outload to a person stated in the are	

(1) A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.

International application No.
PCT/JP2004/019001

Box No. VIII

Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

What is disclosed in the meaning of PCT Article 5 is obtaining high heat resistance in a phase-change memory by means of a storage having the following (1) and (2) constitutions.

- (1) A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.
- A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein it comprises a plurality of memory cells and a plurality of word lines for selecting the above-described memory cells and a plurality of data lines disposed so as to intersect the above-described plurality of word lines and for reading signals from the above-described plurality of memory cells; the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.

Thus, what is disclosed in the meaning of PCT Article 5 is merely a very small part of the inventions of claims 1 through 18, and is not adequately supported in the meaning of PCT Article 6.

International application No.
PCT/JP2004/019001

Supplemental Box

In case the space in any of the preceding boxes is not sufficient. Continuation of: $Box\ V$

(2) A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein it comprises a plurality of memory cells and a plurality of word lines for selecting the above-described memory cells and a plurality of data lines disposed so as to intersect the above-described plurality of word lines and for reading signals from the above-described plurality of memory cells; the total content of at least one element selected from the group consisting of Ge and Sh or at least one element selected from the group consisting of Ge and Sh, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.

PATENT COOPERATION TREATY

TRANSLATION INTERNATIONAL SEARCHING AUTHORITY Tċ: WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1) Date of mailing (day/month/year) Applicant's or agent's file reference FOR FURTHER ACTION See paragraph 2 below NT1852PCT Priority date (day/month/year) International filing date (day/month/year) International application No. 06.02.2004 PCT/JP2004/019001 20.12.2004 International Patent Classification (IPC) or both national classification and IPC Applicant Renesas Technology Corp. This opinion contains indications relating to the following items: Box No. I Basis of the opinion Box No. II Priority , Non-establishment of opinion with regard to novelty, inventive step and industrial applicability Box No. III Box No. IV Lack of unity of invention Reasoned statement under Rule 43bis. 1(a)(i) with regard to novelty, inventive step or industrial Box No. V applicability; citations and explanations supporting such statement Certain documents cited Box No. VI Certain defects in the international application Box No. VII Certain observations on the international application Box No. VIII **FURTHER ACTION** If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered. If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCI/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later. For further options, see Form PCT/ISA/220. For further details, see notes to Form PCT/ISA/220. Authorized officer Name and mailing address of the ISA/JP

Telephone No

Facsimile No.

International application No.
PCT/JP2004/019001

Box	No. 1	Basis of this opinion	
1.	With filed,	regard to the language, this opinion has been established on the basis of the international application in the language in unless otherwise indicated under this item.	which it was
		This opinion has been established on the basis of a translation from the original language into the following language, which is the language of a translation furnished for the purposes of international se	earch (under
		Rule 12.3 and 23.1(b)).	
2.	With	regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to tion, this opinion has been established on the basis of:	the claimed
	a.	type of material	
		a sequence listing	
ľ		table(s) related to the sequence listing	1
	b.	format of material	
		in written format	
		in computer readable form	
	c.	time of filing/furnishing	
		contained in the international application as filed.	}
		filed together with the international application in computer readable form.	
		furnished subsequently to this Authority for the purposes of search.	
3.		In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has furnished, the required statements that the information in the subsequent or additional copies is identical to that in the affiled or does not go beyond the application as filed, as appropriate, were furnished.	been filed or application as
4.	Λdd	tional comments:	
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International application No.
PCT/JP2004/019001

Box				de 43bis.1(a)(l) with regard to porting such statement	novelty, inventive step or industrial appli-	cability;
1.	Statement					
	Novelty (N)		Claims	1-18		YES
			Claims			NO
	Inventive step	(IS)	Claims	1-18		YES
		•	Claims		\	NO
	Industrial appl	licability (IA)	Claims	1-18		YES
			Claims			No

2. Citations and explanations:

Document 1: JP 2002-512439 A (Energy Conversion Devices, Inc.), 23 April 2002, full text & WO 1999/054128 A1

Document 2: JP 2001-502848 A (Energy Conversion Devices, Inc.), 27 February 2001, full text & WO 1998/019350 $\Lambda 1$

Document 3: JP 11-514150 \wedge (Energy Conversion Devices, Inc.), 30 November 1999, full text & WO 1997/015954 A1

Document 4: JP 11-510317 A (Energy Conversion Devices, Inc.), 07 September 1999, full text & WO 1997/005665 A1

Document 5: WO 2003/050872 A1 (Matsushita Electric Industrial Co., Ltd.), 19 June 2003, full text

Document 6: WO 2000/054982 A1 (Matsushita Electric Industrial Co., Ltd.), 21 September 2000, full text

Document 7: JP 55-008830 B1 (Matsushita Electric Industrial Co., Ltd.), 06 March 1980, full text

Document 8: JP 2003-229537 A (Hitachi, Ltd.), 15 August 2003, full text & US 2003/0146469 A1

The storage disclosed in and supported by the specification and having the following (1) and (2) constitutions is not described in any of the documents cited in the ISR and is non-obvious to a person skilled in the art.

Therefore, the inventions of claims 1 through 18 are not described in any of the documents cited in the ISR and are non-obvious to a person skilled in the art.

(1) A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.

International application No.
PCT/JP2004/019001

Box No. VIII

Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

What is disclosed in the meaning of PCT Article 5 is obtaining high heat resistance in a phase-change memory by means of a storage having the following (1) and (2) constitutions.

- (1) A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.
- A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein it comprises a plurality of memory cells and a plurality of word lines for selecting the above-described memory cells and a plurality of data lines disposed so as to intersect the above-described plurality of word lines and for reading signals from the above-described plurality of memory cells; the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.

Thus, what is disclosed in the meaning of PCT Article 5 is merely a very small part of the inventions of claims 1 through 18, and is not adequately supported in the meaning of PCT Article 6.

International application No.
PCT/JP2004/019001

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

(2) A storage consisting of a storage layer that stores information by causing a reversible phase change between a crystalline phase and a noncrystalline phase, wherein it comprises a plurality of memory cells and a plurality of word lines for selecting the above-described memory cells and a plurality of data lines disposed so as to intersect the above-described plurality of word lines and for reading signals from the above-described plurality of memory cells; the total content of at least one element selected from the group consisting of Ge and Sb or at least one element selected from the group consisting of Ge and Sb, and Bi is equal to or greater than 2 atom% and less than 25 atom%, the content of Te is equal to or greater than 40 atom% and equal to or less than 65 atom%, and the total content of at least one element selected from the group consisting of Zn or Zn and Co and N is equal to or greater than 20 atom% and less than or equal to 50 atom% and consisting of a memory element that has an electrode formed with the above-described storage layer on both faces.

発信人 日本国特許庁 (国際調査機関)

出願人代理人 小川 勝男	REC'D 10 FEB 2005
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あて名	PCT
〒 104-0033 東京都中央区新川一丁目3番3号第17荒井ビル8 階日東国際特許事務所	国際調査機関の見解咨 (法施行規則第40条の2) (PCT規則43の2.1)
	^{発送日} (日. 月. 年) 08. 02. 2005
出願人又は代理人	今後の手続きについては、下記2を参照すること。
の告類記号 NT1852PCT	
国際出願番号 PCT/JP2004/019001 国際出願日 (日.月.年) 20.	12.2004 (E.月.年) 06.02.2004
国際特許分類(IPC)	01177/24 H01145/00
Int. Cl' H01L27/10 G11C13/00	GIIBY/24 HUIL45/03
出願人(氏名又は名称) 株式会社ルネサステクノロジ	
それを裏付けるための文献及び説明 第VI欄 ある種の引用文献	る新規性、進歩性又は産業上の利用可能性についての見解、 月
際予備審査機関がPCT規則66.1の2(b)の規定に基づいない旨を国際事務局に通知していた場合を除いて、この	禁調査機関とは異なる国際予備審査機関を選択し、かつ、その国 、て国際調査機関の見解審を国際予備審査機関の見解なとみなさ 、見解審は国際予備審査機関の最初の見解むとみなされる。
63月又は優先日から22月のうちいずれか建く個月 な場合は補正書とともに、答弁書を提出することができ	
さらなる選択肢は、様式PCT/ISA/220を参照	·
3. さらなる詳細は、様式PCT/ISA/220の備考を	を参照すること。
見解書を作成した日	
26.01.2005	(松岡の大文時長) 41 8421
名称及びあて先 日本国特許庁(I S A / J P)	特許庁審査官(権限のある職員) 4L 8421 河口雅英
郵便番号100-8915 東京都千代田区復が関三丁目4番3号	電話番号 03-3581-1101 内線 3462

様式PCT/ISA/237 (表紙) (2004年1月)

第1 棚 見解の基礎	·
	2に示す場合を除くほか、国際出願の言節を基礎として作成された。
- Barretoù	語による翻訳文を基礎として作成した。 のために提出されたPCT規則12.3及び23.1(b)にいう翻訳文の言語である。
2. この国際出願で開え 以下に基づき見解す	らされかつ 請求の 範囲に係る 発明に 不可欠な ヌクレオチド又は アミノ 酸配列に関して、 なを作成した。
a. タイプ	配列表
	配列表に関連するテーブル
b. フォーマット	□ 告面
	コンピュータ読み取り可能な形式
c. 提出時期	出願時の国際出願に含まれる
	この国際出願と共にコンピュータ読み取り可能な形式により提出された
·	出願後に、調査のために、この国際調査機関に提出された
3. 二 さらに、配列 た配列が出願 あった。	表又は配列表に関連するテーブルを提出した場合に、出願後に提出した配列若しくは追加して提出し 時に提出した配列と同一である旨、又は、出願時の開示を超える事項を含まない旨の陳述書の提出が
4. 補足意見:	
,	

444	∇㎞ 新担性 准振性▽は産業上σ	○利用可能性についてのPCT規則43の2.1(a)(i)に定める見解、	
	それを現付る文献及び説明	7,000	
١,	. 見解	•	
_	,)414		
	新規性(N)	請求の範囲 <u>1-18</u> 請求の範囲	有 無
	進歩性(IS)	請求の範囲 請求の範囲	有
ŀ		·	_
ľ	産業上の利用可能性 (IA)	請求の範囲 <u>1-18</u> 請求の範囲	有
2	. 文献及び説明	·	
Ì	文献1:IP 200	2-512439 A (エナージー コンバージョン	デバ
	イセス インコーポレ	イテッド) 2002.04.23, 全又	
	0.000 1 0.000 / 0	5 1 1 9 Q A 1	<u></u>
	文献 2: JP 200	1-502848 A (エナージー コンバージョン	アハ
1	イセス インコーポレ	イテッド) 2001.02.27, 全又	
1	&WO 1998/0	19350 A1	バイヤ
	文献3:JP 11-	514150 A (エナージー コンバージョン デ	
		ッド) 1999. 11. 30, 全文	y.
	&WO 1997/0	15954 A1	バイヤ
	文献 4: JP 11-	- 510317 A (エナージー コンバージョン デ	, ., _
İ	スインコーボレイブ	シャド) 1999.09.07,全文	
	&WO 1997/0	03/050872 A1 (MATSUSHITA ELECTRIC INDU	STRIAL
	文献 5:WO 200 CO.,LTD) 2003	06 10 今文	
	CO.,LID) 2003.	00/054982 A1 (MATSUSHITA ELECTRIC INDU	STRIAL
-	文献 6:WO 200 CO.,LTD) 2000.	00 01 全文	
1	CO.,LID/ 2000.	-008830 B1 (松下電器産業株式会社) 198	0.0
	3 06 全女		
1	- 3.00, <u>エ</u> へ →献8・1 P 200)3-229537 A (株式会社日立製作所) 200	3. 0
ł	8 15 全文		
	&US 2003/0	146469 A1	
	•		مابرا ہے ہیں
	明細書に開示され、	裏付けられている下記(1)及び(2)の構成を有す	る記憶
-	装置について、国際部	間査報告に引用されたいずれの文献にも記載されており	ず、当
	業者にとって自明なす	らのでもない。	
	したがって、請求の	D範囲1乃至18に係る発明は、国際調査報告に引用さ	イレバこり

ずれの文献にも記載されておらず、当業者にとって自明なものでもない。

(1) Ge及びSbよりなる群から選ばれた少なくとも1元素、又はGe及びSb よりなる群から選ばれた少なくとも1元素並びにBiを合計で2原子%以上25原

第四個 国際出願に対する意見

請求の範囲、明細書及び図面の明瞭性又は請求の範囲の明細書による十分な裏付についての意見を次に示す。

PCT第5条の意味において開示されているのは、下記(1)及び(2)の構成を 有する記憶装置によって、相変化メモリにおいて高い耐熱性を得たことである。

- (1) Ge及びSbよりなる群から選ばれた少なくとも1元素、又はGe及びSbよりなる群から選ばれた少なくとも1元素並びにBiを合計で2原子%以上25原子%未満、Teを40原子%以上65原子%以下、Zn、又はZn並びにCo及びNよりなる群から選ばれた少なくとも1元素を合計で20原子%以上50原子%以下それぞれ合み、結晶相と非晶質相との間で可逆的な相変化を起こすことにより情報を記憶する記憶層と、前記記憶層の両面に形成された電極とを有するメモリ素子からなる記憶装置。
- (2) 複数のメモリセルと前記複数のメモリセルを選択する複数のワード線と、前記複数のワード線と直交するように配置され、前記複数のメモリセルから信号が読み出される複数のデータ線とを有し、前記複数のメモリセルの各々は、Ge及びSbよりなる群から選ばれた少なくとも1元素、又はGe及びSbよりなる群から選ばれた少なくとも1元素並びにBiを合計で2原子%以上25原子%未満、Teを40原子%以上65原子%以下、Zn、又はZn並びにCo及びNよりなる群から選ばれた少なくとも1元素を合計で20原子%以上50原子%以下それぞれ含み、結晶相と非晶質相との間で可逆的な相変化を起こすことにより情報を記憶する記憶層と、前記記憶層の両面に形成された電極とを有する記憶装置。

そうすると、PCT第5条の意味において開示されているのは、請求の範囲1乃至18に係る発明のごくわずかな部分にすぎず、PCT第6条の意味で十分に裏付けられていない。

補充棩

いずれかの棚の大きさが足りない場合

第 V 棚の続き

子%未満、Teを40原子%以上65原子%以下、Zn、又はZn並びにCo及びNよりなる群から選ばれた少なくとも1元素を合計で20原子%以上50原子%以下それぞれ合み、結晶相と非晶質相との間で可逆的な相変化を起こすことにより情報を記憶する記憶層と、前記記憶層の両面に形成された電極とを有するメモリ素子からなる記憶装置。

(2) 複数のメモリセルと前記複数のメモリセルを選択する複数のワード線と、前記複数のワード線と直交するように配置され、前記複数のメモリセルから信号が読み出される複数のデータ線とを有し、前記複数のメモリセルの各々は、Ge及びSbよりなる群から選ばれた少なくとも1元素、又はGe及びSbよりなる群から選ばれた少なくとも1元素並びにBiを合計で2原子%以上25原子%未満、Teを40原子%以上65原子%以下、Zn、又はZn並びにCo及びNよりなる群から選ばれた少なくとも1元素を合計で20原子%以上50原子%以下それぞれ合み、結晶相と非晶質相との間で可逆的な相変化を起こすことにより情報を記憶する記憶層と、前記記憶層の両面に形成された電極とを有する記憶装置。